

WHAT IS CLAIMED IS:

1. A heater comprising:

a plate including a heating surface which heats an object to be heated; and

5 a resistant heater element provided in the plate, the resistant heater element including a continuous wiring pattern with a plurality of flexures and including a thermal uniform pattern part which improves thermal uniformity between one flexure and another flexure adjacent thereto.

2. A heater comprising:

10 a plate including a heating surface for heating an object to be heated; and

a resistant heater element provided in the plate, the resistant heater element having a continuous wiring pattern with a plurality of folding parts, in which a space between wirings before folding and after folding with respect to each of the folding parts is approximately the same as a width L3 in a region other than the folding part and  
15 the vicinity thereof and is made wider than the width L3 at the folding part and in the vicinity thereof.

3. The heater according to claim 2, wherein the folding part includes an approximately linear connection part and corners at both ends of the connection part.

4. The heater according to claim 3, wherein, in the folding part, at least one of the  
20 corners includes an approximately round swollen part protruding outward.

5. The heater according to claim 2, wherein, in the wiring pattern, the space between the wirings before folding and after folding with respect to each of the folding parts becomes gradually wider as the wiring moves closer to the folding part in the vicinity of the folding part.

25 6. The heater according to claim 2, wherein, in the wiring pattern, two terminals are disposed in the center of the plate and a plurality of arc wiring parts in concentric circles,

which are axisymmetric to a center line of the plate, are included.

7. The heater according to claim 2, wherein the resistant heater element is embedded in the plate.

8. The heater according to claim 2, wherein the plate is made of ceramics.

5 9. The heater according to claim 8, wherein the ceramics is aluminum nitride.

10. A heater comprising:

a plate including a heating surface which heats an object to be heated;

at least one of holes which penetrate the heating surface in a vertical direction or have a depth in the heating surface; and

10 a resistant heater element provided in the plate, the resistant heater element includes a continuous wiring pattern with a plurality of flexures, the wiring pattern includes multiple rows of wiring parts having curved portions which avoids the holes around the holes and radii of curvature in the curved portions of the multiple rows of wiring parts getting sequentially larger as they move away from the hole.

15 11. The heater according to claim 10, wherein the flexure is a folding part of wiring, in which a space between the wirings before folding and after folding with respect to each of the folding parts is approximately the same as a width L3 in a region other than the folding part and the vicinity thereof and is made wider than the width L3 at the folding part and in the vicinity thereof.

20 12. The heater according to claim 10, wherein the resistant heater element is embedded in the plate.

13. The heater according to claim 10, wherein the plate is made of ceramics.

14. The heater according to claim 13, wherein the ceramics is aluminum nitride.

15. A heater comprising:

25 a plate including a heating surface which heats an object to be heated; and  
a resistant heater element provided in the plate,

wherein the resistant heater element includes a wiring pattern in which a plurality of element lines having terminals for input/output of electric power are concentrically disposed, each of the element lines includes a winding pattern, one element line passes between the terminals by means of a flexure and the flexure has a swollen part in an asymptotic direction to an adjacent portion of adjacent any of the same element line and another element line.

16. The heater according to claim 15, wherein the adjacent portion of the adjacent another element line is the flexure of the another element line.

17. The heater according to claim 15, wherein the adjacent portion of the same element line is a terminal connection part of the same element line.

18. The heater according to claim 15, wherein the resistant heater element is embedded in the plate.

19. The heater according to claim 15, wherein the plate is made of ceramics.

20. The heater according to claim 19, wherein the ceramics is aluminum nitride.